

What is claimed is:

1. A parameter adjusting device comprising parameter adjusting means adopting a surface potential model wherein a formula for analysis is derived based on surface potential as a circuit design model of a semiconductor element; defining a chromosome with genes as a respective great number of parameters of the circuit design model of the semiconductor element; and optimizing said parameters using a genetic algorithm based on property measured data of the tested semiconductor element.

10

2. A parameter adjusting device according to claim 1, wherein said parameter adjusting means comprises:

first portion parameter adjusting means at least adjusting the parameters which determine the structure of the 15 semiconductor element based on the property measured data of the semiconductor element belonging to a long channel group; and

second portion parameter adjusting means at least adjusting the parameters which require adjustment, excepting the parameters being adjusted by said first portion parameter 20 adjusting means based on the property measured data of various length of channels, with reference to an adjustment result of said first parameter adjusting means.

3. A parameter adjusting device according to claim 2, wherein 25 said parameter adjusting means adopts HiSIM as said surface potential model, and comprising:

said first portion parameter adjusting means adjusting a part of the parameters of a technological parameter group of the HiSIM, and a part of the parameters which is determined by the 30 determination of technological parameters of a mobility parameter group; and

said second portion parameter adjusting means also readjusting a part of the parameters being adjusted by said first portion parameter adjusting means.

4. A parameter adjusting device according to claim 1, wherein
said portion parameter adjusting means comprises generating
range determination means obtaining the center of gravity in the
5 vector space of a parent chromosome group, in crossover
processing of a genetic algorithm, and determining a generating
range of a child chromosome group inside a hyperpolyhedron in the
vector space which is determined by values of said center of
gravity and parent chromosome group.

10

5. A parameter adjusting device according to claim 1, wherein
said portion parameter adjusting means comprises:

evaluated value calculation means obtaining both the first
evaluated value based on the data of a linear scale and the
15 second evaluated value based on the data of a log scale, in
selection processing of the genetic algorithm, and determining a
total of the first evaluated value and the second evaluated
value as the evaluated value of said chromosomes; and
normalization means unifying a scale of the data.

20

6. A program for operating a computer as parameter adjusting
means which adopts a surface potential model wherein a formula
for analysis is derived based on the surface potential as a
circuit design model of a semiconductor element; defines
25 chromosome wherein great number of parameters of a circuit
design model of the semiconductor element are the genes; and
optimizes the parameters using a genetic algorithm based on the
property measured data of the tested semiconductor element.

30 7. A parameter adjusting method in a surface potential model
wherein a formula for an analysis is derived based on a surface
potential as a circuit design model of a semiconductor element,
comprising:

a first step defining chromosomes wherein great number of parameters of the circuit design model of the semiconductor element are the genes, and adjusting the parameters which determine the structure of the semiconductor element using a 5 genetic algorithm based on property measured data of a long channel group of the tested semiconductor element; and

a second step defining chromosomes wherein the respective great number of parameters of the circuit design model of the semiconductor element are the genes, and adjusting the 10 parameters which are required to be adjusted, excepting the parameters adjusted in at least said first step, using a genetic algorithm, based on the property measured data of various length of channels of the tested semiconductor element, with reference to an adjustment result of said first step.

15 8. A parameter adjusting device comprising parameter adjusting means which adapts an electric charge model wherein a formula for an analysis is derived based on an electric charge as a circuit design model of a semiconductor element; defines 20 chromosomes wherein great number of parameters of a circuit design model of the semiconductor element are the genes; and optimizes said parameters based on the property measured data of a tested semiconductor element, using a genetic algorithm.